

What is HGW 2282.5 (MF CC 201) EN

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Hgw 2282.5 (MF CC 201) – cotton-fabric laminate with melamine resin, tracking-resistant, physiologically safe

HGW 2282.5 (type designation Hgw 2282.5 acc. to DIN 7735, MF CC 201 acc. to EN 60893) is a fabric-based industrial laminate – a thermoset made of cotton fabric impregnated with melamine resin and pressed under heat and pressure. The material combines high mechanical strength with very good tracking resistance (CTI 600) and is physiologically safe – it is suitable for tracking-resistant machine and insulating parts and is also usable in the food industry.

Classification and basic character

Fabric-based laminates (HGW) belong to the industrial laminates: fabric layers are impregnated with a thermosetting resin and pressed under heat and pressure into sheets, round bars or tubes. For HGW 2282.5, the reinforcing fabric is cotton and the binding resin is a melamine resin. Unlike thermoplastics, the cured thermoset does not melt but is dimensionally stable, hard and strong. The melamine matrix gives the material its characteristic high tracking resistance and physiological safety; the colour is light beige.

Tracking resistance and food suitability

The outstanding feature of HGW 2282.5 compared to phenolic-bonded fabric laminates is the melamine matrix: it provides very high tracking resistance (comparative tracking index CTI 600) and makes the material physiologically safe. This makes it suitable both for tracking-resistant insulating and machine parts in electrical engineering and for components in the food industry. The material is also light (light beige) rather than brown like phenolic grades.

How HGW 2282.5 is made and processed

HGW 2282.5 is produced by pressing resin-impregnated cotton fabric layers into sheets, round bars or tubes. From these semi-finished products we machine precision parts – sawing, milling, turning and drilling produce clean results with sharp, carbide-tipped tools. Adequate dust extraction should be ensured during machining (resin/fabric dust). The material is dimensionally stable; the (low) moisture uptake of the cotton fabric must be considered for tight tolerances.

Mechanical, electrical and thermal properties

HGW 2282.5 reaches typical values of a flexural strength around 135 MPa, a tensile strength around 95 MPa and a compressive strength around 230 MPa with a modulus of elasticity around 9,000 MPa and a density of about 1.4 g/cm³. Electrically, the material offers high tracking resistance (CTI 600), high electric strength and good insulation resistance. The limiting temperature for continuous use is 95 °C (thermal class Y). Cotton-fabric laminate absorbs moisture; for permanently damp or wet environments it is only conditionally suitable.

When HGW 2282.5 is the right choice

HGW 2282.5 is worthwhile whenever mechanical strength must be combined with tracking resistance and physiological safety – for example:

- Tracking-resistant insulating and switching parts in electrical engineering
- Machine parts and fixtures in the food industry
- Gears, sliding and guiding elements
- Terminal strips, insulating plates and carrier parts
- Components requiring a light, physiologically safe grade

When HGW 2282.5 is NOT the right choice

Equally important are the limits of the material:

- Permanently damp or wet environment (cotton fabric is hygroscopic)
- Continuous service above about 95 °C (thermal class Y)
- Contact with hot and/or acidic foods without separate verification (melamine migration)
- Applications with high impact/shock loading at edges (brittle thermoset)
- Forming or welding – not possible as a thermoset (machining only)

What does HGW 2282.5 cost?

HGW 2282.5 is an engineering laminate; the price depends on the semi-finished shape (sheet, round bar, tube), dimension, material utilisation (offcut), machining effort and lot size. Melamine fabric laminate is priced above standard phenolic fabric laminates. We are happy to quote binding prices on request based on your drawing.

Processing at Liedtke

HGW 2282.5 machines well – sawing, milling, turning and drilling produce clean, dimensionally accurate results with sharp, carbide-tipped tools. During machining we ensure adequate dust extraction. This is how we reliably produce tracking-resistant insulating, machine and food-industry parts – from single pieces to series production.

Advantages and disadvantages at a glance

An honest assessment – and how the disadvantages can be mitigated in practice:

Advantages

- Very high tracking resistance (CTI 600)
- Physiologically safe, usable in the food industry
- High mechanical strength and dimensional stability
- Good electrical insulation properties
- Light (light beige), good machinability

Disadvantages

- Cotton fabric absorbs moisture – not for permanently wet environments
- Continuous service limited to about 95 °C (thermal class Y)
- Thermoset – not formable or weldable (machining only)
- Verify melamine migration for hot/acidic foods

Practical tip: HGW 2282.5 (MF CC 201) is the right choice when a fabric laminate must be light, tracking-resistant and physiologically safe – for example for insulating parts and components in the food industry. For purely mechanical, cost-effective applications without these requirements, phenolic fabric-laminate or paper-laminate grades are more economical; at high temperature or in wet conditions, glass-fibre-reinforced grades (e.g. Hgw 2372, glass-epoxy) are preferable.

Typical Properties

- Very high tracking resistance (CTI 600)
- Physiologically safe
- Usable in the food industry
- High mechanical strength
- Good electrical insulation properties
- Thermoset, dimensionally stable
- Good machinability
- Colour light beige

Product Examples

- Tracking-resistant insulating and switching parts
- Machine parts in the food industry
- Gears, sliding and guiding elements
- Terminal strips and insulating plates
- Carrier and fixture parts
- Light, physiologically safe components

Typical Industries

- Electrical and insulation technology
- Mechanical and plant engineering
- Food industry
- Switchgear and equipment construction
- Jig, fixture and tool making
- Drive technology

	Test Method	Unit	Value
Mechanical Properties (typ. measured values)			
Flexural strength	DIN 53452	MPa	135
Tensile strength	DIN 53455	MPa	95
Compressive strength	DIN 53454	MPa	230
Modulus of elasticity	DIN 53452	MPa	$9 \cdot 10^3$
Electrical Properties			
Comparative tracking index CTI	IEC 60112		600
Electric strength $\parallel$ / $\perp$	DIN 53481	kV	30 / 15
Dielectric constant	DIN 53483		5.5
Thermal / General Properties			
Limiting temperature	VDE 0304, T.21	°C	95
Thermal class	VDE 0534		Y
Density	DIN 53479	g / cm ³	1.4
Colour			light beige

The type designation HGW 2282.5 corresponds to Hgw 2282.5 acc. to DIN 7735 and MF CC 201 acc. to EN 60893 (melamine resin with cotton fabric). The values stated are typical measured values and meet the minimum requirements of DIN 7735; they are subject to the usual manufacturing tolerances. Cotton-fabric laminate absorbs moisture and is only conditionally suitable for permanently wet environments. Food-contact suitability depends on the application and temperature and must be confirmed case by case. The values serve as an aid to material selection and are not a legally binding warranty of specific properties.